The *Spaceguard Survey*: How are we doing?

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The often-stated goal of the *Spaceguard Survey* is to discover ≥90% of all NEAs larger than 1 km in diameter within ten years. For practical purposes, diameter $D > 1$ km is taken to be equivalent to absolute magnitude $H < 18.0$, corresponding to an assumed mean albedo of ~0.1. A recent estimate of the cumulative population of these objects $N(H<18)$ is ~1,000 (D'Abramo *et al.*, this conference). The total number discovered through the end of 2000 is about 450, thus in terms of numbers, the goal of the *Spaceguard Survey* is halfway met. However, a curve of completion vs. time for a survey of constant capability is not a straight line, but a curve that asymptotically approaches completion. Thus in terms of time or effort, the survey is far less than half-complete. Indeed, from a scaled curve of completion based on a computer simulation of an all-sky survey, the present rate of discovery implies a 15-year time to reach 90% completion, with the mid-point of completion (45%) less than three years into the 15-year interval. Thus the present discovery rate is about 2/3 that needed to achieve 90% completion in the targeted ten-year time. Current surveys are now covering nearly all of the accessible sky area each month, and reaching to a threshold sky magnitude of about 19.0. In order to increase the rate of detections further, it appears to be necessary to increase the limiting magnitude of detections, perhaps to 20.0 in order to meet the *Spaceguard Goal.*

Among the various survey assumptions I have modeled, I have included a number of objects (about 20 out of 1000) in my set of synthetic orbit elements that are completely interior to the Earth's orbit. I find that for an all-sky survey, covering sky area to moderately under 90° elongation from the sun, these interior objects are in fact slightly more detectable than typical exterior objects, simply because the orbit periods are so short that chances to discover them are more frequent. The implications of this simulation are: (1) such objects can be readily discovered with a ground-based survey; and (2) the fact that none has yet been found with certainty suggests that they are few in number.